



UNITED STATES PATENT AND TRADEMARK OFFICE

COMMISSIONER FOR PATENTS
UNITED STATES PATENT AND TRADEMARK OFFICE
WASHINGTON, D.C. 20231
www.uspto.gov

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Paper No. 10

-- Application Number: 09/611,182
Filing Date: July 06, 2000
Appellant(s): KOZLOV ET AL.

Richard S. Roberts
For Appellant

EXAMINER'S ANSWER

MAILED

FEB 06 2002

GROUP 1700

This is in response to the appeal brief filed 1/9/02.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. There are no known related appeals or interferences which will directly affect or be directed affected by or have a bearing on the decision in the pending appeal.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

No amendment after final has been filed.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

The rejection of claims 1-4, 7, 9-23, and 25-26 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

(8) *Claims Appealed*

A substantially correct copy of appealed claims 1-23 and 25-26 appears on pages 15-18 of the Appendix to the appellant's brief. The minor errors are as follows: the copy of Claim 23 contains the word "ceramics", while the actual pending version of Claim 23 contains the singular word form of "ceramic".

(9) Prior Art of Record

3,486,928	RHODA ET AL.	12-1969
5,980,345	CHANG ET AL.	11-1999
5,032,694	ISHIHARA ET AL.	7-1991

JP 58204168, TORIKAI ET AL. (11-1983)

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-2, 4, 7, 9-21, 23, and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhoda et al. in view of Chang et al.

Rhoda et al. teaches electrolessly plating a substrate, such as a glass, metal, or ceramic, with a platinum-rhodium alloy, by exposing the substrate to an aqueous, electroless platinum-rhodium plating solution bath, which comprises a platinum salt, a rhodium ammine nitrite salt, ammonium hydroxide, and hydrazine hydrate, where the components of the bath can be supplied in the claimed concentrations (Col. 2, lines 15-33; Col. 3, lines 1-11; Example V; Col. 5, lines 25-52). Rhoda et al. indicates that uniform plating layers are provided with the process (Col. 3, lines 44-46). The electroless plating process of Rhoda et al. does not utilize electrolysis and is autocatalytic. Rhoda et al. teaches that the plating bath can be at a temperature of 25-35°C

(Example V). The use of a plating bath in Rhoda et al. would indicate that the substrate is dipped into the plating solution for the plating process.

Rhoda et al. does not teach that the platinum salt is a platinum nitrite or ammine-nitrite salt. Chang et al. teaches an electroless platinum plating solution utilizing ammonium hydroxide and hydrazine hydrate, where the platinum salt is platinum diammine dinitrite (Claim 9). The platinum diammine dinitrite of Chang et al. meets the platinum salt limitations of the applicant's Claims 1-2 and 4. It would have been obvious to one skilled in the art to use a conventional platinum salt in the process and solution of Rhoda et al. with the expectation of providing the desired results. It would have been obvious to one skilled in the art to use the platinum diammine dinitrite of Chang et al., as the platinum salt material in Rhoda et al., with the expectation of providing the desired electroless plating results, since it is shown by Chang et al. that platinum diammine dinitrite is a known platinum salt for use in electroless plating solutions containing ammonium hydroxide and hydrazine hydrate.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rhoda et al. and Chang et al. as applied to claim 1 above, and further in view of JP 58204168 by Torikai et al. ("Torikai").

Rhoda et al. and Chang et al. do not teach that the rhodium salt has a formula meeting the limitations of Claim 3. Torikai teaches an electroless rhodium plating solution, containing a platinum salt, ammonium hydroxide, and hydrazine hydrate; where the rhodium salt utilized can be in the form of an ammine-nitrite salt, which meets the limitations of the applicant's Claim 3 (Abstract; Pg. 3, 3rd full paragraph; Example 4). It would have been obvious to one skilled in the art to use a conventional rhodium salt in the process and solution of Rhoda et al. and Chang et al.

Art Unit: 1762

with the expectation of providing the desired results. It would have been obvious to one skilled in the art to use the rhodium salt described by Torikai, as the platinum salt material in Rhoda et al. and Chang et al., with the expectation of providing the desired electroless plating results, since it is shown by Torikai that such a rhodium salt is known for use in electroless plating solutions containing a platinum salt, ammonium hydroxide, and hydrazine hydrate.

4. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rhoda et al. and Chang et al. as applied to claim 11 above, and further in view of Ishihara et al.

Rhoda et al. and Chang et al. do not teach that the substrate is a semiconductor. Ishihara et al. teaches applying a platinum-rhodium alloy plating over a substrate comprising a semiconductor material (Col. 2, lines 45-60). The substrate described by Ishihara et al. meets the limitations of Claim 22. It would have been obvious to one skilled in the art to use a substrate, such as that of Ishihara et al. to be platinum-rhodium alloy plated by the plating solution of Rhoda et al. and Chang et al., with the expectation of providing the desired plating results, since it is shown by Ishihara et al. that such a substrate is conventionally plated with platinum-rhodium alloy.

(11) Response to Argument

The appellant has argued against the combination references in that there is no suggestion or motivation to combine and that the examiner is using the obvious to try standard to combine the references, which is improper. The examiner respectfully disagrees. It is the examiner's position that one skilled in the art, having reviewed the prior art (specifically Rhoda and Chang), would have found the claimed process and composition obvious with the expectation of achieving the desired Pt-Rh plating results in Rhoda. Rhoda teaches the claimed electroless

plating composition and process, except that the platinum salt used does not meet the material requirement of the claims. The examiner has applied the Chang reference to meet the deficiency. Chang teaches an electroless platinum plating solution utilizing ammonium hydroxide and hydrazine hydrate, where the platinum salt is platinum diammine dinitrite (Claim 9). The platinum diammine dinitrite of Chang meets the platinum salt limitations of the applicant's Claims 1-2 and 4. One of ordinary skill in the art would have recognized, from review of Chang, that platinum diammine dinitrite is a known and conventional platinum salt for use in electroless plating baths utilizing ammonium hydroxide and hydrazine hydrate, which are also utilized in the bath of Rhoda. It would have been obvious to one skilled in the art to use a conventional platinum salt in the process and solution of Rhoda, which is conventionally used in electroless solutions utilizing hydrazine hydrate and ammonium hydroxide, with the expectation of providing the desired electroless plating results, as it would have been expected that the platinum salt of Chang would be reduced for plating in the bath of Rhoda, as the bath of Rhoda utilizes the same reducing agent as Chang. Therefore, it would have been obvious to one skilled in the art to use the platinum diammine dinitrite of Chang, as the platinum salt material in Rhoda, with the expectation of providing the desired electroless plating results, since it is shown by Chang that platinum diammine dinitrite is a known platinum salt for use in electroless plating solutions containing ammonium hydroxide and hydrazine hydrate. One of ordinary skill in the art would have found it expected that such a platinum salt would have been reduced by the plating bath materials of Rhoda et al. and thus produce the desired platinum metal for the Pt-Rh alloy layer.

The appellant further argues that there is no suggestion that the solutions of Rhoda and Chang, as Rhoda requires that the ammonium hydroxide must not be greater than 1 g/L, while

Art Unit: 1762

Chang utilizes 100 mL/L of ammonium hydroxide. However, Rhoda and Chang merely utilize the ammonium hydroxide as a pH adjustment agent, whose concentration levels would have been obvious to control in order to achieve the desired pH level, as is recognized by Rhoda. The fact that Rhoda and Chang both utilize the same reducing agent (hydrazine hydrate) and pH adjustment agent (ammonium hydroxide) is an indicator that the plating solutions taught by Rhoda and Chang would have been compatible.

The appellant has argued that there would have been no motivation to combine the Torikai reference with Rhoda and Chang. The examiner again respectfully disagrees. The Torikai reference is merely applied by the examiner to show a conventional rhodium salt used in electroless plating. One of ordinary skill in the art would have recognized, from review of Torikai, that such a rhodium salt, meeting the formula of Claim 3, is a known and conventional rhodium salt for use in electroless plating baths utilizing ammonium hydroxide and hydrazine hydrate. It would have been obvious to one skilled in the art to use a conventional rhodium salt in the process and solution of Rhoda et al. and Chang et al., which is conventionally used in electroless solutions containing hydrazine hydrate and ammonium hydroxide, with the expectation of providing the desired electroless plating results. Therefore, it would have been obvious to one skilled in the art to use the rhodium salt of Torikai, as the rhodium salt material in Rhoda et al. and Chang et al., with the expectation of providing the desired electroless plating results, since it is shown by Torikai that the rhodium salt is a known rhodium salt for use in electroless plating solutions containing ammonium hydroxide and hydrazine hydrate. One of ordinary skill in the art would have found it expected that such a rhodium salt would have been

reduced by the plating bath materials of Rhoda et al. and Chang et al. and thus produce the desired rhodium metal for the Pt-Rh alloy layer.

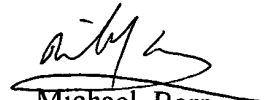
The appellant has argued against the Ishihara reference stating that it is not directed to electroless plating. However, the examiner is merely applying the Ishihara reference to show the conventionality of applying a platinum-rhodium alloy plating over a semiconductor substrate. The substrate described by Ishihara meets the limitations of Claim 22. Although Ishihara may not teach applying the Pt-Rh layer by electroless plating, electroless plating of semiconductor material is a well-known and used technique for forming metal layers on semiconductors. One of ordinary skill in the art would have found it obvious to use a substrate, such as that of Ishihara et al. to be platinum-rhodium alloy plated by the plating solution of Rhoda et al. and Chang et al., with the expectation of providing the desired plating results, since it is shown by Ishihara et al. that such a substrate is conventionally plated with platinum-rhodium alloy.

In response to appellant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Art Unit: 1762

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,


Michael Barr
Primary Examiner
Art Unit 1762

MB
February 5, 2002

Conferees

RICHARD S. ROBERTS
P.O. BOX 484
PRINCETON, NJ 08542


GREGORY MILLS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700
Appeal Conference


SHRIVE P. BECK
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

Conferee